

Support Access to Raw Milk

Consumers are increasingly seeking out raw milk as a natural, unprocessed food. Unfortunately, some people in the conventional dairy industry and medical fields are seeking to restrict people's informed choices through banning or unreasonable restrictions on the sale of raw milk. **We urge you to reject such efforts and support consumer choice.**

The justification for bans or severe restrictions on raw milk is that it is supposedly dangerous, but this is not supported by the data. It is important to recognize that any food can be the source of foodborne illness under the wrong conditions. When thousands of people became sick from spinach, peanut butter, and cantaloupes, no one urged that we ban these products or severely limit consumers' access to them. **The issue isn't whether some people have become sick from raw milk on occasion – the issue is whether raw milk poses such an unusually high level of risk that it somehow justifies the government interfering with people's choices.**

All of the data discussed below is from the CDC for the 13-year period from 1998 to 2010, based on the online database at <http://wwwn.cdc.gov/foodborneoutbreaks>. Nationwide, in that 13-year period, there were 1,414 illnesses, 80 hospitalizations, and **no** deaths attributed to raw milk.^a

To put these numbers in context, there were 2301,076 illnesses, 10,317 hospitalizations, and 223 deaths reported to the CDC in that time period from all foods. See wwwn.cdc.gov/foodborneoutbreaks. Consider the illnesses attributed to a few other foods:

- Fruit salad: 1,323 illnesses, 29 hospitalizations, and 1 death;
- Tuna: 1,415 illnesses, 41 hospitalizations, and 3 deaths (*not including raw tuna or sushi*);
- Pizza: 1,614 illnesses, 20 hospitalizations, and 3 deaths.

The numbers of illnesses attributed to fruit salad, tuna, and pizza are similar to those attributed to raw milk during this time period – with the exception that, unlike these foods, raw milk has **not** caused any deaths. While more people may consume these foods occasionally, few people consume these foods day-in and day-out, in contrast to raw milk.

Consumption rates:

How many people drink raw milk? According to a CDC survey, an average of 3% of the population has drunk raw milk within the last 7 days. *Foodborne Active Surveillance Network (FoodNet) Population Survey Atlas of Exposures (2006-2007)*, www.cdc.gov/foodnet/surveys/FoodNetExposureAtlas0607_508.pdf. That translates to approximately 9.4 million raw milk consumers nationwide. So, out of 9.4 million raw milk drinkers, approximately 110 allegedly become sick each year from raw milk, or 0.001% annually.

^a A few of the larger outbreaks during this time period are listed as having multiple causes, such as "1% milk, unpasteurized; sauces, unspecified" or "butter; goat cheese/chevre, unpasteurized; goat milk, unpasteurized; whole milk, unpasteurized", making it unclear whether it was raw milk or some processed product that was truly the causative agent. We have erred on the side of including these outbreaks, thus overestimating the number of illnesses properly attributable to raw milk.

Pasteurized milk also carries some risk of foodborne illness

What about the numbers for pasteurized milk? In the same time period (1998-2010), 2,227 people became ill, 27 people were hospitalized, and **3 died** from pasteurized milk. A large number of people drink pasteurized milk, so the relative risk is not high. But no food is risk-free.

In fact, a massive foodborne illness outbreak was linked to pasteurized milk in the 1980s. In 1985, there were over 16,000 confirmed cases of Salmonella infection that were traced back to pasteurized milk from a single dairy. Two surveys estimated that the actual number of people who became ill in that outbreak were over 168,000, "making this the largest outbreak of salmonellosis ever identified in the United States." Ryan, CA et al. Massive outbreak of antimicrobial-resistant salmonellosis traced to pasteurized milk. J. American Medical Assn. 258(22):3269-74 (1987), <http://www.ncbi.nlm.nih.gov/pubmed/3316720?dopt=Abstract>

Raw milk is a separate issue from fresh raw cheeses, which pose a higher risk

Some industry groups have presented higher numbers of illnesses allegedly due to raw milk, including two deaths. But these numbers are not attributable to raw milk, but rather to all raw dairy products. This is an important distinction because of the extensive problems reported from raw queso fresco, often imported from Mexico or made under unsanitary conditions at home and therefore nicknamed "bathtub cheese." See Queso Fresco: Cheese with a reputation, <http://www.foodsafetynews.com/2010/05/queso-fresco-cheese-with-a-reputation>. Many of the illnesses and all of the deaths that the industry attributes to raw milk were in fact linked to raw queso fresco, which is an illegal product.

Conclusion

The data, as opposed to the rhetoric, shows that raw milk does not pose an unusually high risk of foodborne illness.

There are multiple principles that support continued, reasonable access to raw milk:

- Americans have a right to decide what they feed themselves and their families.
- Direct sales of raw milk provide a reasonable income for small family farms, often making the difference between being able to continue farming and going out of business.
- Supporting family farms supports rural economies in general by promoting local businesses and keeping money circulating locally.

Attachment 1: Scientific studies have documented benefits from raw milk

The claim that raw milk has no benefits over pasteurized milk is, on its face, false. Does anyone contend that cooked strawberries or spinach are no different than raw strawberries or spinach? It's well-accepted that heating foods not only changes the taste, but destroys enzymes and certain nutrients.

In addition, there are published, peer-reviewed scientific studies showing health benefits from raw milk.

Several recent studies in Europe have found that drinking "farm" (raw) milk protects against asthma and allergies. (See Riedler, J. et al. 2001. Exposure to farming in early life and development of asthma and allergy: a cross-sectional survey. Lancet 358:1129-33. Perkin, M.R. and D.P. Strachan. 2006. Which aspects of the farming lifestyle explain the inverse association with childhood allergy? J Allergy Clin Immunol. 117(6):1374-8. Waser, M. et al. 2006. Inverse association of farm milk consumption with asthma and allergy in rural and suburban populations across Europe. Clinical and Experimental Allergy 37:661-670. Perkin, M.R. 2007. Unpasteurized milk: health of hazard? Clinical and Experimental Allergy 37:627-630.)

Raw milk retains higher levels of Vitamins A, B, C, and D than pasteurized. (See Haug, A., A.T. Hostmark, and O.M. Harstad. 2007. Bovine milk in human nutrition—a review. Lipids Health Disease 6:25 ("Proteins and peptides are heat sensitive, and their bioactivity may be reduced by pasteurization of milk. Heating of milk may also result in the formation of potentially harmful new products, i.e. when carbohydrates in milk react with proteins."). Wong, D.W.S. and W.M. Camirand. 1996. Structures and functionalities of milk proteins. Critical Rev Food Science Nutr. 36(8): 807-844. Runge, F.E. and R. Heger. 2000. Use of microcalorimetry in monitoring stability studies. Example: Vitamin A Esters. J Agric Food Chem 48(1):47-55. Kilshaw, P.J., L.M. Heppell, and J.E. Ford. 1982. Effects of heat treatment of cow's milk and whey on the nutritional quality and antigenic properties. Arch Disease Childhood 57: 842-847 (heat treatment destroyed all of the Vitamin B12, about 60% of the thiamin and Vitamin B6, 70% of the ascorbic acid, and about 30% of the folate). Gregory, J.F. 1982. Denaturation of the folacin-binding protein in pasteurized milk products. J Nutr. 112: 1329-1338. Effect of several heat treatments and frozen storage on thiamine, riboflavin, and ascorbic acid content of milk. J Dairy Sci. 66: 1601-6. Rajakumar, K. 2001. Infantile scurvy: a historical perspective. Pediatrics 108(4):E76. Hollis, B.W. et al. 1981. Vitamin D and its metabolites in human and bovine milk. J Nutr. 111:1240-1248. See also Levieux, D. 1980. Heat denaturation of whey proteins: comparative studies with physical and immunological methods. Ann Rech Vet. 11(1): 89-97 ("Nutritionists believe that high losses of nutritive value occur in heated proteins following cross-linking since high cross-linked proteins cannot be degraded by digestive enzymes."))

Moreover, there are numerous testimonials about the benefits of drinking raw milk. See <http://www.realmilk.com>. While these do not provide scientific evidence of benefits, it is clear that individuals choose to expend significant time and money to drink raw milk because they see a benefit.

Attachment 2: Improving legal access to raw milk will not increase foodborne illness outbreaks

Some groups have argued against allowing or expanding legal access to raw milk on the grounds that if you make it easier to get raw milk legally, more people will drink raw milk, and more people will get sick. While that argument is intuitively appealing, it is contradicted by the CDC's data.

The attached chart shows the consumption of raw milk in 10 states, the raw milk laws in each state, and the incidence of foodborne illnesses.

First, note that in every state, the number of illnesses attributed to raw milk is a very small percentage of the total number of foodborne illnesses.

Second, there is no pattern indicating that making raw milk legally accessible increases consumption. Maryland (where raw milk sales are illegal) had the exact **same** percentage of people who had drunk raw milk within the last 7 days as California (where raw milk can be sold in grocery stores). And Georgia, where raw milk can only be sold as pet food, had the highest consumption rates of all.

Third, there is also no pattern of increasing rates of consumption correlating to increasing illnesses. The two states with the highest rates of consumption -- Tennessee and Georgia -- had lower rates of raw milk illnesses than the three states with the lowest rates of consumption -- Minnesota, Colorado, and Connecticut.

How can this be true? The most likely reason is that the risk of foodborne illness from raw milk is low enough that the outbreaks are sporadic and occasional. Because raw milk is not a high-risk food, the incidences of illness are too low to show a pattern.

The data directly contradicts the assertion that increasing legal access to raw milk will increase the number of people who get sick.

Chart of Raw Milk Consumption, Legal Status, and Illness Rates

State	Percentage of population consuming raw milk ^b	Legal state of raw milk	# outbreaks allegedly traced to raw milk, 1998-2010 ^c	# illnesses allegedly traced to raw milk, 1998-2010	Total # foodborne illnesses, 1998-2010, excluding multi-state outbreaks ^d	% of foodborne illnesses allegedly traced to raw milk ^e
Minnesota	2.3%	Farm sales legal	4	16	10,021	0.16%
Colorado	2.4%	Herd shares legal	5	143 ^f	8,330	1.71%
Connecticut	2.7%	Retail sales legal	1	14	3,023	10.46%
Oregon	2.8%	Farm sales legal	1	0-18 ^g	7,514	0 – 0.23%
California	3.0%	Retail sales legal	4	45 ^h	35,313	0.12%
Maryland	3.0%	No legal sales ⁱ	0	0	7,883	0
New Mexico	3.4%	Retail sales legal	1	20 ^j	1,017	1.96%
New York	3.5%	Farm sales legal	5	66 ^k	14,802	0.44%
Tennessee	3.5%	Herd shares legal	2	7	6,464	0.1%
Georgia	3.8%	Legal only as pet food	1	8	8,515	0.09%
10 State total	3%		24	299-337	102,882	0.29 – 0.32%

^b Foodborne Active Surveillance Network (FoodNet) Population Survey Atlas of Exposures. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention (CDC), 2006-2007 (identifying the percentage of people who had consumed raw milk within the last 7 days)..
www.cdc.gov/foodnet/surveys/FoodNetExposureAtlas0607_508.pdf

^c Note: an "outbreak" according to the CDC can involve as few as 2 people.
wwwn.cdc.gov/foodborneoutbreaks/Default.aspx

^d The total foodborne illnesses are actually higher than listed in this chart because all data attributed to multi-state outbreaks was excluded for these purposes because the CDC table does not indicate how many illnesses were attributed to each state.

^e Because of the undercounting of the total number of foodborne illnesses (see note 2), the true % of illnesses allegedly traced to raw milk is lower than indicated.

^f In the same time period in Colorado, there was an outbreak linked to pasteurized milk that sickened 200 people

^g Oregon was part of a multistate outbreak allegedly traced to raw milk in Nov. 2005. The total number of illnesses in that outbreak were 18, but we cannot determine how many occurred in Oregon.

^h In the same time period in California, there were two outbreaks linked to pasteurized milk that sickened 1,744 people.

ⁱ Note that even though raw milk sales are illegal in Maryland, 3% of the Maryland residents surveyed stated that they drank raw milk. Prohibition doesn't work.

^j The New Mexico illnesses are from a single outbreak listed as being from "1% milk, unpasteurized; sauces, unspecified" in a restaurant.

^k In the same time period in New York, there were two outbreaks involving pasteurized milk that sickened 18 people.

Attachment 3: Raw milk does not pose a threat to conventional dairy sales

Another unsupported assertion is that, if there were an outbreak of foodborne illness linked to raw milk, consumers might avoid buying pasteurized milk, hurting conventional milk sales and retailers. The example provided is the drop in spinach sales when a nationwide outbreak of *E. coli* was linked to spinach in 2006.

The claim is wrong because it fails to recognize the difference between mass-distributed goods and direct-to-consumer transactions. The spinach that caused the 2006 outbreak was being sold in the grocery stores around the country under 34 different brand labels. *See Safe at any scale?*, Agric. Hum. Values 25:301-317 (2008). There was no realistic way for consumers to know which spinach was contaminated and which was not. Similar confusion was present in the outbreaks linked to tomatoes/ jalapenos and peanut butter. In contrast, if there were to be illnesses linked to raw milk, the source of the milk would be identified immediately. The transparent, accountable nature of direct-to-consumer sales empowers both the State and consumers to know exactly who has caused the problem and how to avoid it, without any repercussions for other products.

In addition, when there have been illnesses attributed to raw milk in other states, the health departments have been very explicit (even repetitive) about the fact that the problem lay with raw milk and not with pasteurized milk. As a result, even in states where raw milk is sold side-by-side with pasteurized milk in the grocery stores, there has been no evidence that alleged raw milk illnesses have had **any impact at all** on pasteurized milk sales.

Ten states allow the sale of raw milk in grocery stores, so that raw milk is sold side-by-side with pasteurized and the potential for negative repercussions is greatest. We were able to find data on milk sales and prices for four of these states: California, New Mexico, Pennsylvania, and Washington.

An analysis of the data shows that there is no pattern of reduced sales/production or reduced prices in conventional milk at the time of, or after, the alleged outbreaks. Consumers do not avoid pasteurized milk in reaction to reports of outbreaks linked to raw milk.

A chart with the data is available on request.

Sources:

- University of Wisconsin Dairy Marketing and Risk Management Program
Prices: http://future.aae.wisc.edu/data/monthly_values/by_area/6?tab=prices
California sales: future.aae.wisc.edu/data/monthly_values/by_area/2115?area=California&tab=sales&grid=true
- USDA National Agricultural Statistics Services, Milk Cows and Production Final Estimates 1998-2002, http://future.aae.wisc.edu/collection/MilkProduction/milk_cow_fin/milk_cow_final_estimates_1998_2002.pdf
- USDA National Agricultural Statistics Services, Milk Cows and Production Final Estimates 2003-2007, <http://usda.mannlib.cornell.edu/usda/nass/SB988/sb1022.pdf>